ICAMCYL

Centro internacional de materiales avanzados y materias primas

International center for advanced materials and raw materials

Dr. Santiago Cuesta Director General

FUNDACION ICAMCyL:
Centro internacional en materiales avanzados y materias primas de Castilla y León

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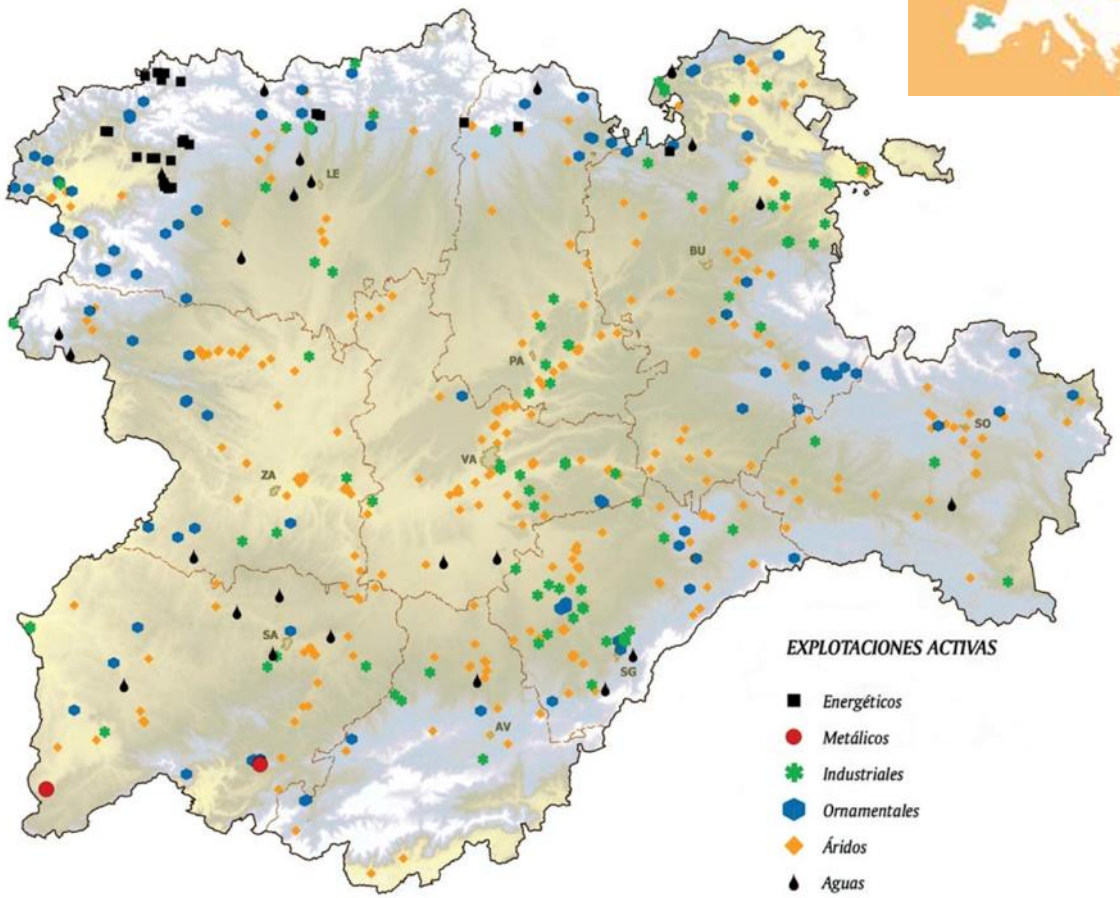
Castilla y León and the mining industry

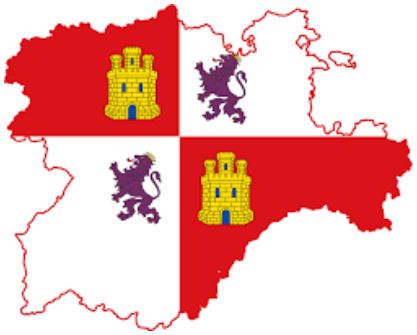


2,519,87 inhabitants (2013)

Regional territorial area: 94,224 km2

9 provinces

2,249 city and town councils (30% Spain)



Castilla y León: a Region rich in Raw Materials

Metalical minerals (Gold, Copper, Tin, Tungsten,...)
Natural Stone Industrial minerals Hydric resources
Energy resources...

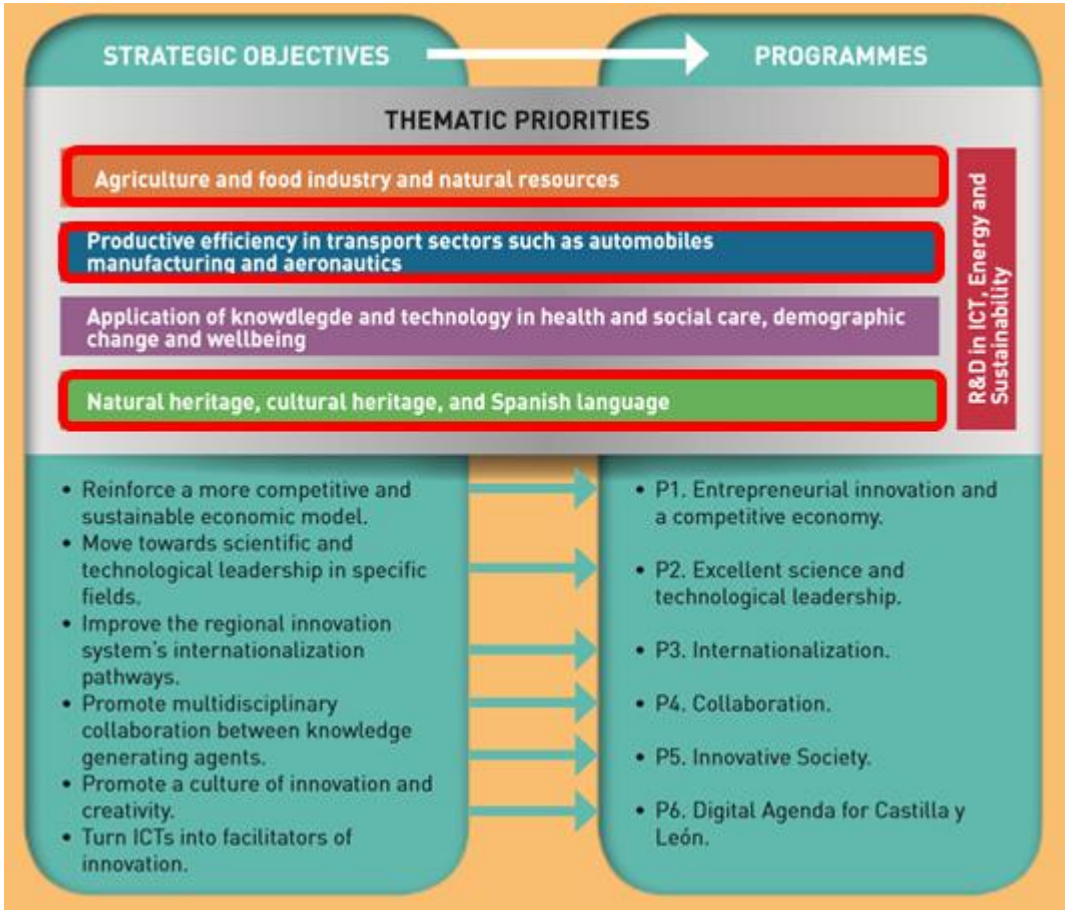
Mining in CyL

•Started during the Roman Empire. In that time was created the "Silver Way" (Vía de la Plata), a communication way between the north and the south of Spain which crosses the region as a spine, mainly developed to transport silver, gold and other minerals.

•In the early years of the **20th Century** mining was one of the most important factors which sparked the economic development of the Region. Production of Iron, Tin, Uranium, Tungsten or Natural Ornamental Stone where some of the most important productions.

•The production of these minerals **declined notably from the 1970s**, being Coal mining the most important extraction, mainly to cover the necessities of regional coal.

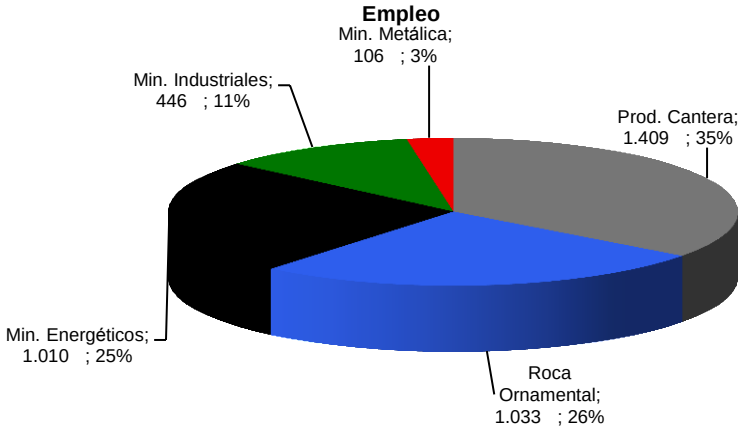
Regional Specialisation Strategy (RIS3)



Castilla y León: a reference mirror in raw materials

PROVINCIA	ENERGÉTICOS	METÁLICOS	INDUSTRIALES	PIEDRA NATURAL	ÁRIDOS	AGUAS	TOTAL
ÁVILA				4	15	1	24
BURGOS	1		18	22	45	3	89
LEÓN	20		10	43	25	6	104
PALENCIA	2		9	8	20	1	40
SALAMANCA		2	6	13	25	5	51
SEGOVIA			22	16	30	2	70
SORIA			3	8	25	1	37
VALLADOLID			9	6	35	2	52
ZAMORA			5	10	25	3	43
TOTAL	**23**	**2**	**86**	**130**	**245**	**24**	**510**

RECURSOS	PROD. (Mt)	VALOR (M)	EMPLEO
ENERGÉTICOS	4,9	181	3.550
INDUSTRIALES	9,8	107	1.090
PIEDRA NATURAL	0,6	260	2.800
ÁRIDOS	41,9	200	1.450
AGUAS (envasad.)	0,6	110	345



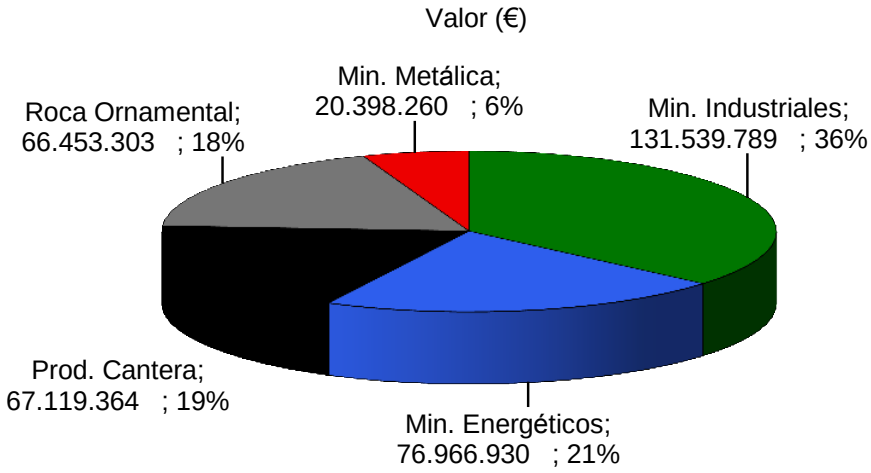


Gráfico 5 Número de trabajadores por sectores en Castilla y León 2014

Connecting research and industry "The main goal of a smart specialisation policy is to concentrate resources on the development of those activities that are likely to transform effectively the existing economic structures through R&D and innovation."

Dominique Foray, École Polytechnique Fédérale de Lausanne

Mikel Landabaso of DG Regio, writing in 1993: "..technology cannot be expected to assist in resolving the problems of competiveness unless it functions as part of a system which is institutionally and organizationally capable of adapting to changing demands on a continuous basis" - (Landabaso, 1993)

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Our success

Connecting with the regional system and its associated industrial network. Looking abroad for good lessons learnt. Identifying and connecting opportunities at similar ecosystems of innovation

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Our success

competitividad empresarial ice | Junta de Castilla y León

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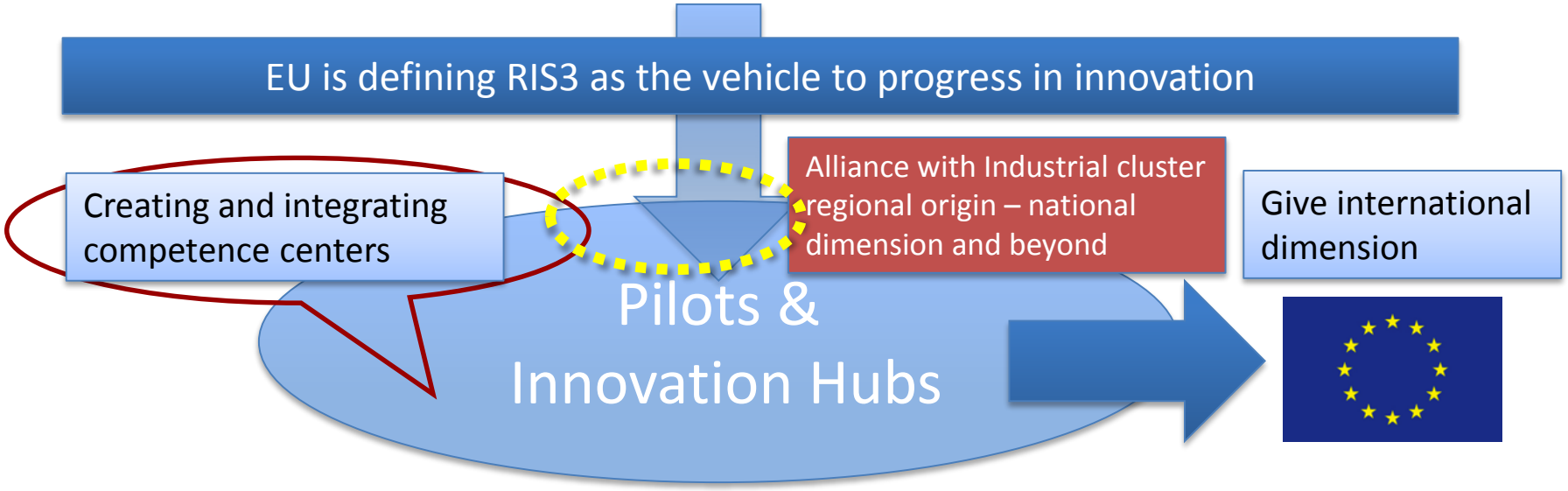
Enabling Technological Progress and Innovation

Innovation is considered the key factor for fostering territory economic growth and increasing the industry competitiveness on the global market

Innovation has a regional dimension, as widely recognized from the European innovation policies

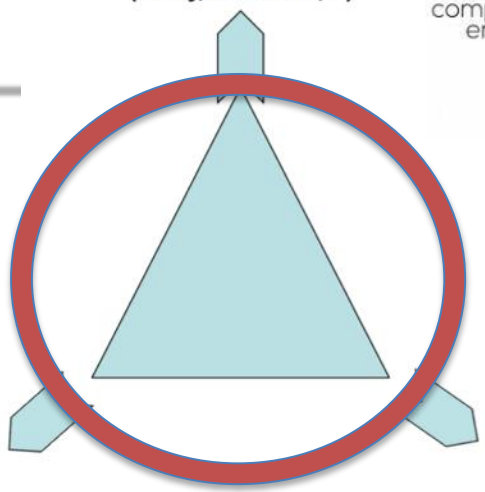
Innovation can be effectively developed and diffused through specialized regional structured systems

Regional Clusters for Innovation



Innovation Triangle in raw materials for CyL

Solid triangle of actors



Junta de Castilla y León

competitividad empresarial ice

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SIEMCALSA

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ASOCIACIÓN DE PRODUCTORES DE PIEDRA NATURAL DE CASTILLA Y LEÓN

Regional Industry

ISMC CLUSTER

INTAUXMA

BEFESA

BERKELEY minera

LEONORE DEVELOPMENT

EPC GROUPE

CUPAPIZARRAS
The world leader in natural slate

Strategic Minerals Spain

PEAL
OPERADORES MINEROS

GESMINLE
gestión minera legal y económica

THE BENEFITS OF THIS SCENARIO

Innovations enabled by interregional collaboration and the regional ecosystems will result in reduced costs for technology and hence increased development, and deployment.

INNOVATION ECOSYSTEMS: Strong innovation ecosystems are needed to profile the region as a hotspot for innovation, to attract industrial investment and to develop the regional economy.
Interregional collaboration and the regional ecosystems will foster European-wide innovations and establish (inter)regional innovation ecosystems. Further, it provides risk sharing by bringing together all stakeholders along the value chain from academia & industry.

Interregional collaboration and the regional ecosystems will enable the EU to take industrial leadership and hence to secure and foster growth and jobs for the future.

COMPETENCE CENTER IN SYNERGY WITH REGIONAL CLUSTERS
Innovation, Technology Transfer and Knowledge-based Business

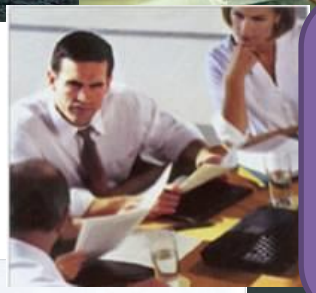
regional hub for the valorization of research results

promotion of innovation and technology transfer

in-house technical, financial, business and marketing consultancy

management of national and international joint R&D programs

high level training and education on managerial and entrepreneurial issues



promotion of investments in technology-oriented business

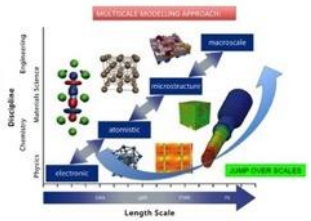
promotion of technology clusters and of national and international partenariats and business networks

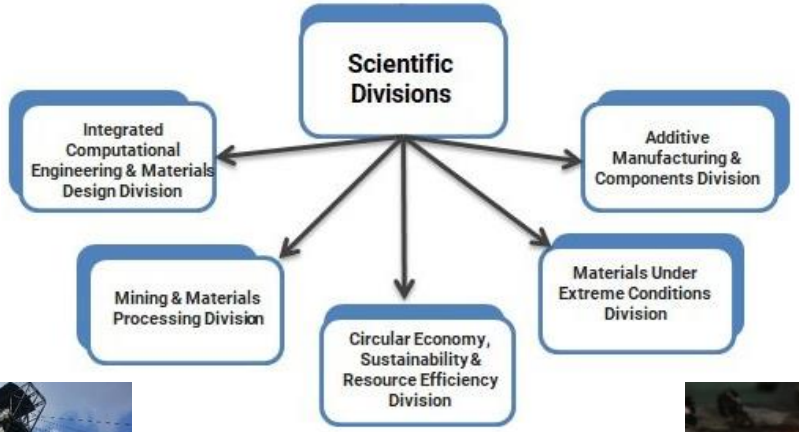
facilitated access to regional, national and international funds for RTD and innovation development

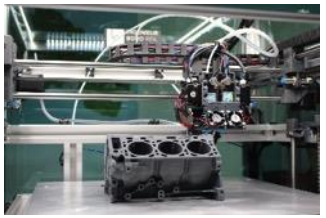
common image promotion and communication

Offering key innovation and technical services to local industry

ICAMCyL, a reference competence center







ADVANCED MINING TECHNOLOGIES

- Exploration
- Classification
- Processing

CIRCULAR ECONOMY

- Waste
- Recycling
- Valorisation

SUSTAINABILITY

- New production methods
- Eco-innovation
- Resource efficiency

NANOMATERIALS

- Carbon-based
- MOFs
- Composites
- Alloys

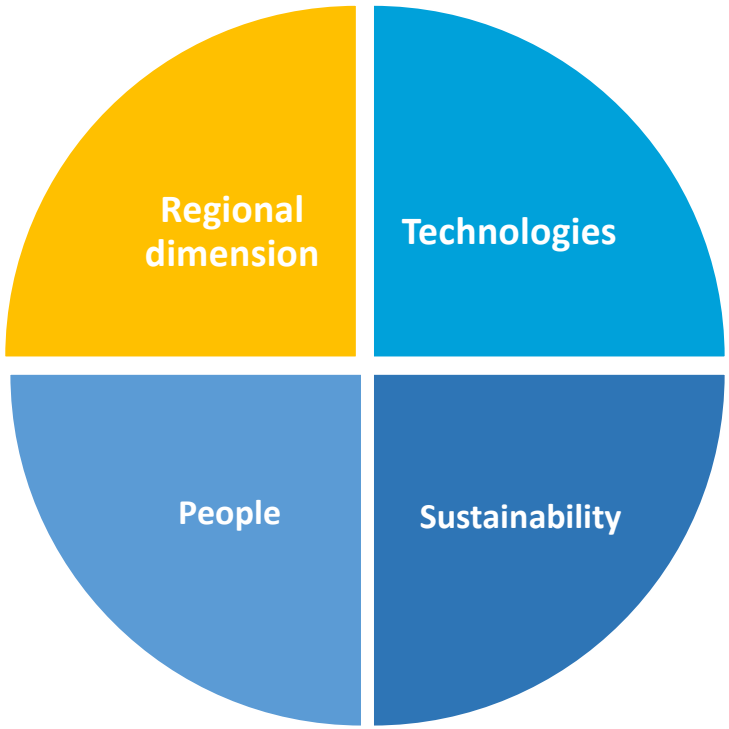
FABRICATION

- Additive manufacturing
- Pilot lines
- Industry

ENERGY & CLIMATE CHANGE

- Batteries /fuel-cells
- CO_2 capture
- Smart cities

CLUSTER in synergy with Innovation as regional approach



Regional Innovation ecosystems as pillars of Industrial development

Focus on Industrial uptake of Enabling Technologies , invest in pilot plants & demonstrators

Reinforce Human Capital, Skills and Cluster policy for Industrial development

Use the "challenge approach" to combine industrial development and sustainability

Iberian Sustainable Mining Cluster (ISMC) (I)

The Iberian Sustainable Mining Cluster (ISMC) arises due to the current situation of the mining sector, particularly in the province of León and the region of Castilla y León (Spain); which affects the entire value chain and the social acceptance. ISMC is made up of almost 40 regional, national and international companies that join efforts to consolidate the strengths of the mining sector and its associated services and promote sustained economic growth, giving priority and special attention to SMEs

OBJECTIVES

- Energizing and boosting the mining sector and associated services
- Promoting growth and competitiveness
- Encouraging cooperation amongst its members
- Attracting business and comercial opportunities
- Promoting technological innovation in the field of R+D+i

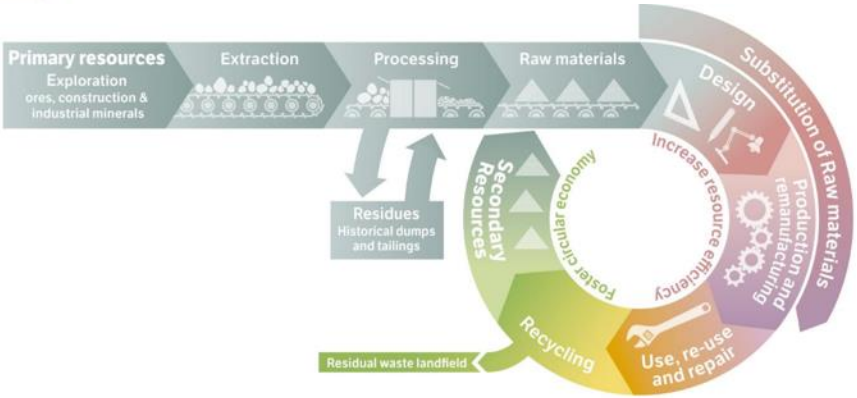
EXPERTISE OFFER

- ISMC covers the whole mining value chain
- Wide coverage of raw materials & CRMs
- Pilots and new lines of research
- Stakeholders participation
- Clustering activities

Iberian Sustainable Mining Cluster (ISMC) (II)

40 members (and growing) covering the whole value chain

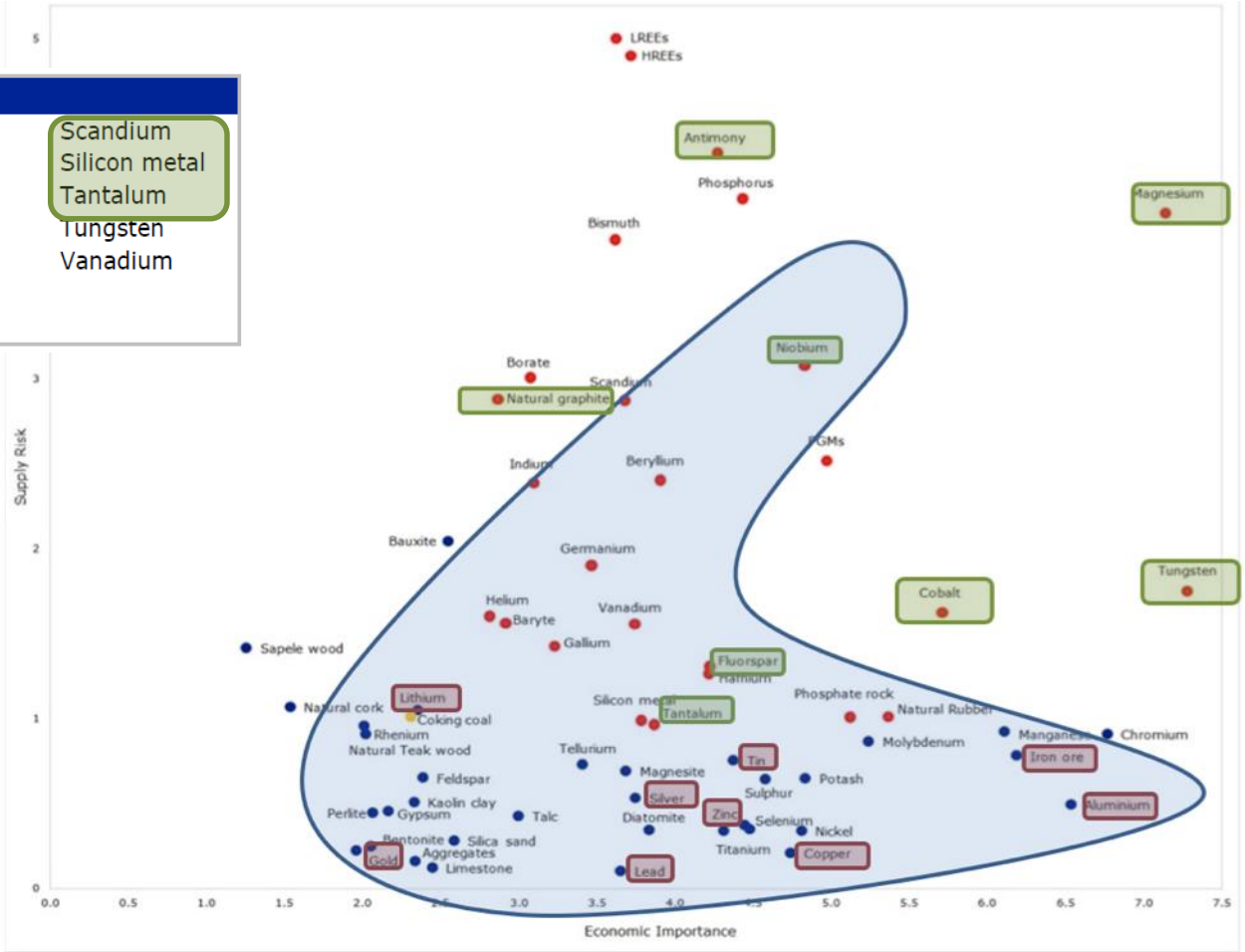
Extraction of mining resources & raw materials / Engineering / Training / Transportation / Associated services / Comercialisation



Iberian Sustainable Mining Cluster (ISMC) (III)

9 CRMs + 9 RMs from the EU list (Oct'18)

2017 CRMs (26)			
Antimony	Gallium	Magnesium	Scandium
Baryte	Germanium	Natural graphite	Silicon metal
Beryllium	Hafnium	Natural Rubber	Tantalum
Bismuth	Helium	Niobium	Tungsten
Borate	HREEs	PGMs	Vanadium
Cobalt	Indium	Phosphate rock	
Fluorspar	LREEs	Phosphorus	



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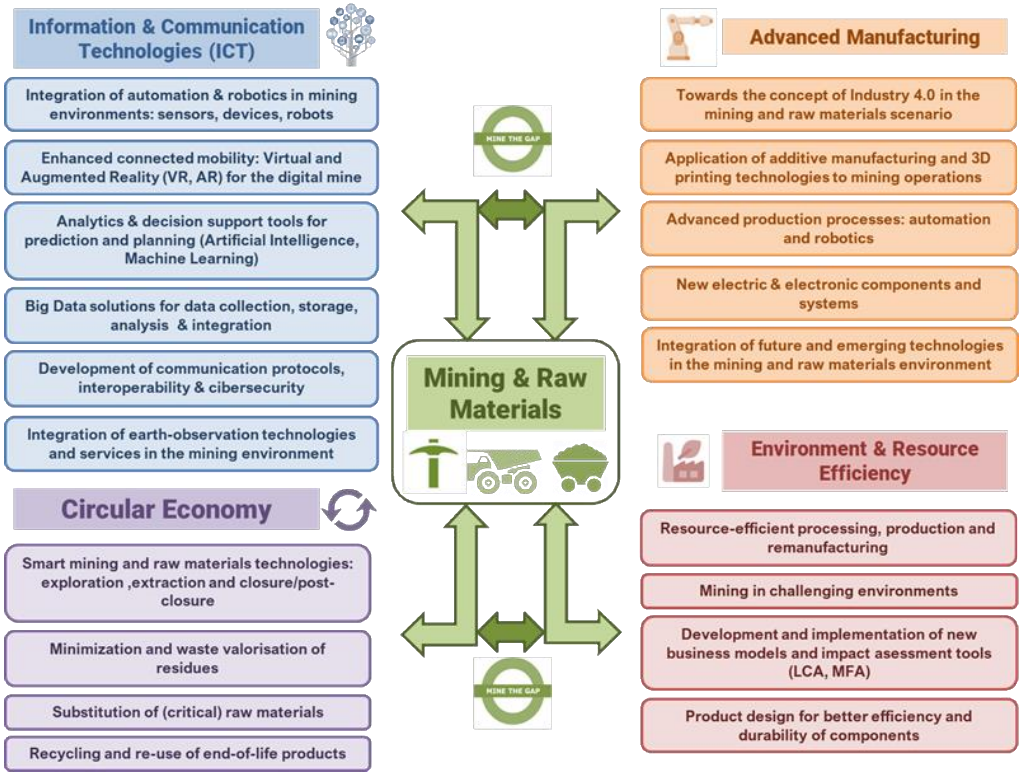
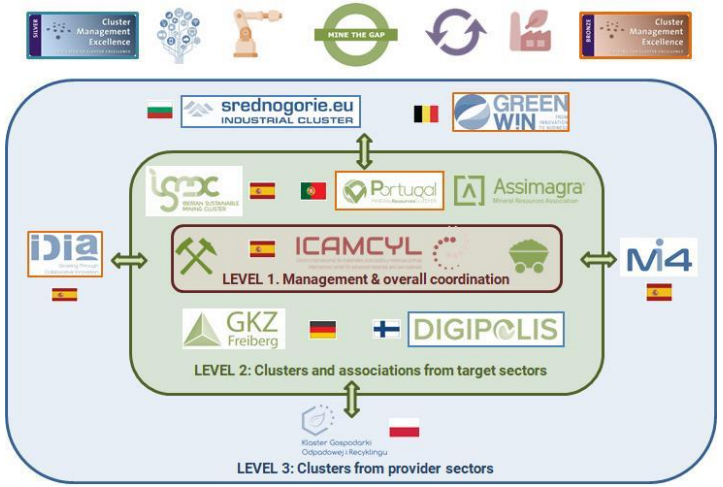
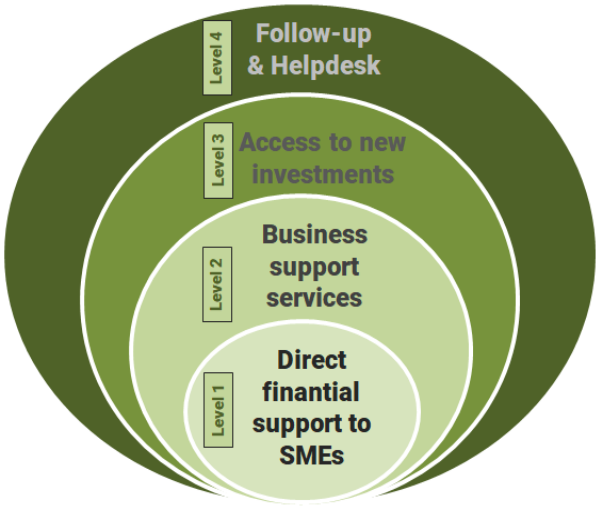
General Management / Executive Secretary / Technical Direction

An EU approach bringing advance to SMEs within and beyond the cluster





Cluster name (Acronym)	Region (Country)	No. members	No. SMEs
Iberian Sustainable Mining Cluster (ISMC)[8]	Castilla y León (ES)	53	52
Associação Cluster Portugal Mineral Resources (ACPMR)[9] (Bronze label)	Alentejo (PT)	35	23
Geokompetenzzentrum Freiberg (GKZ)[10]	Saxony (GE)	163	110
The Arctic Smart Industry and Circular Economy Cluster (DIGIPOLIS)[11](Silver label)	Lapland (FL)	120	80
Industrial Cluster Srednogorie (ICS)[12](Silver label)	Yugozapaden (BU)	27	8



MINE.THE.GAP Open Calls	Short Description
Overall aim	Financial support to accelerate access to the market for new products and/or services delivered by SMEs from the mining and raw materials sectors
Target sectors	Mining & Raw Materials
Provider sectors	ICT, circular economy, resource efficiency and advanced manufacturing
Types of activities to be funded	**MINE-PoC:** design and implementation of a prototype/proof-of-concept to demonstrate the viability of the proposed solution. **MINE-Demo:** developing and testing in a production environment of a fully-functional demo/pilot with all the major features of the product/service/solution.
TRLs covered	TRL6-7 (**MINE-PoC**) to TRL7-8 (**MINE-Demo** activities)
Eligibility	All activities are collaborative, with the participation of one SME from the target sectors and 2 SMEs from the provider sectors, coming from different sectors. All the SMEs in on single project must come from different clusters, regions and countries.
Duration of the activities	**MINE-PoC:** 9 months / **MINE-Demo:** 12 months
Funding conditions	-Maximum funding per SME/project: 30k€ (**MINE-PoC**), 60k€ (**MINE-Demo**) -Maximum funding per project: 90k€ (**MINE-PoC**), 180k€ (**MINE-Demo**) -Maximum funding/cumulative contribution to individual SMEs in MINE.THE.GAP: 60k€ -Payments: 25% pre-funding, 75% after final report.
Available budget and no. activities to be funded	-Budget for each open call: 1.5M€; Total budget for the two Open Calls: 3M€ -Budget per activity: **MINE-PoC** 1.25M€, 8 **MINE-Demo**: 1.75M€ -No. activities to be funded: ~24 (14 **MINE-PoC**, 10 **MINE-Demo**)
No. SMEs to be benefited	Total no. SMEs in the target sectors: 24. Total no. SMEs in the participating clusters: 48. Expected no. SMEs to be directly benefited: **70-110**
Evaluation criteria	**Excellence** (3/10), **Impact** (4/10) and **Implementation** (3/10)

Technology surveillance | Technology transfer | IPR

Commercialisation | Training workshops | Mentoring and coaching

Matchmaking | Incubation and acceleration support | Competitions

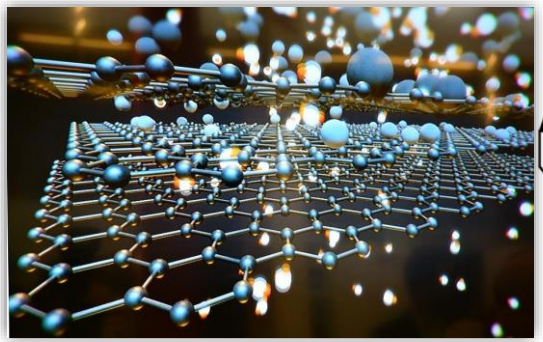
Brokerage events | Awards | Mobility/exchange programmes

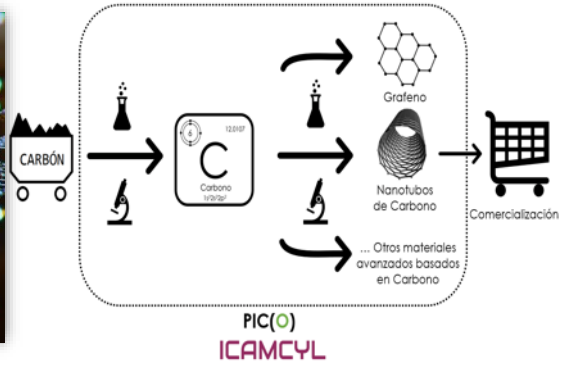
Poles of Innovation:

POLO PARA LA INNOVACIÓN DEL CARBÓN(O):

RECUPERACIÓN DE LAS CUENCAS MINERAS MEDIANTE LA PRODUCCIÓN DE MATERIALES TECNOLÓGICOS DE BASE CARBONO A PARTIR DEL CARBÓN

Revitalizing the region: recovering coal mining places by the creation of an innovation pole for carbon





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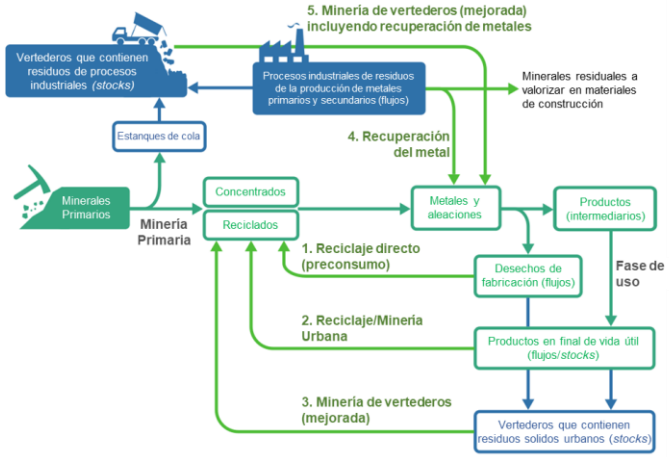
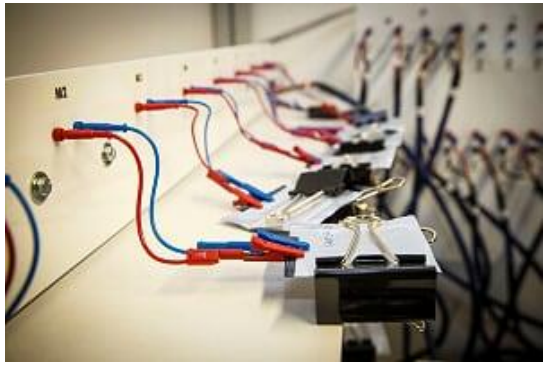
POLO DE INNOVACIÓN Y RESTRUCTURACIÓN SOCIAL DE LAS CUENCAS MINERAS HACIA UNA NUEVA MINERIA SOSTENIBLE



S3P-Industrial modernisation for batteries



Advanced materials for batteries

ELECTRO MOBILITY

STATIONARY ENERGY STORAGE

Aim of this S3P-Industrial Modernisation is to bridge the large gap between research and industrial applications.

Join the SMART SPECIALISATION PLATFORM

Advanced materials for batteries for electromobility and stationary energy storage

COORDINATOR

KEMIJSKI INŠTITUT

CO-LEADING REGIONS

Junta de Castilla y León

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Agencia Andaluza de la Energía
CONSEJERÍA DE ECONOMÍA, INNOVACIÓN Y CIENCIA

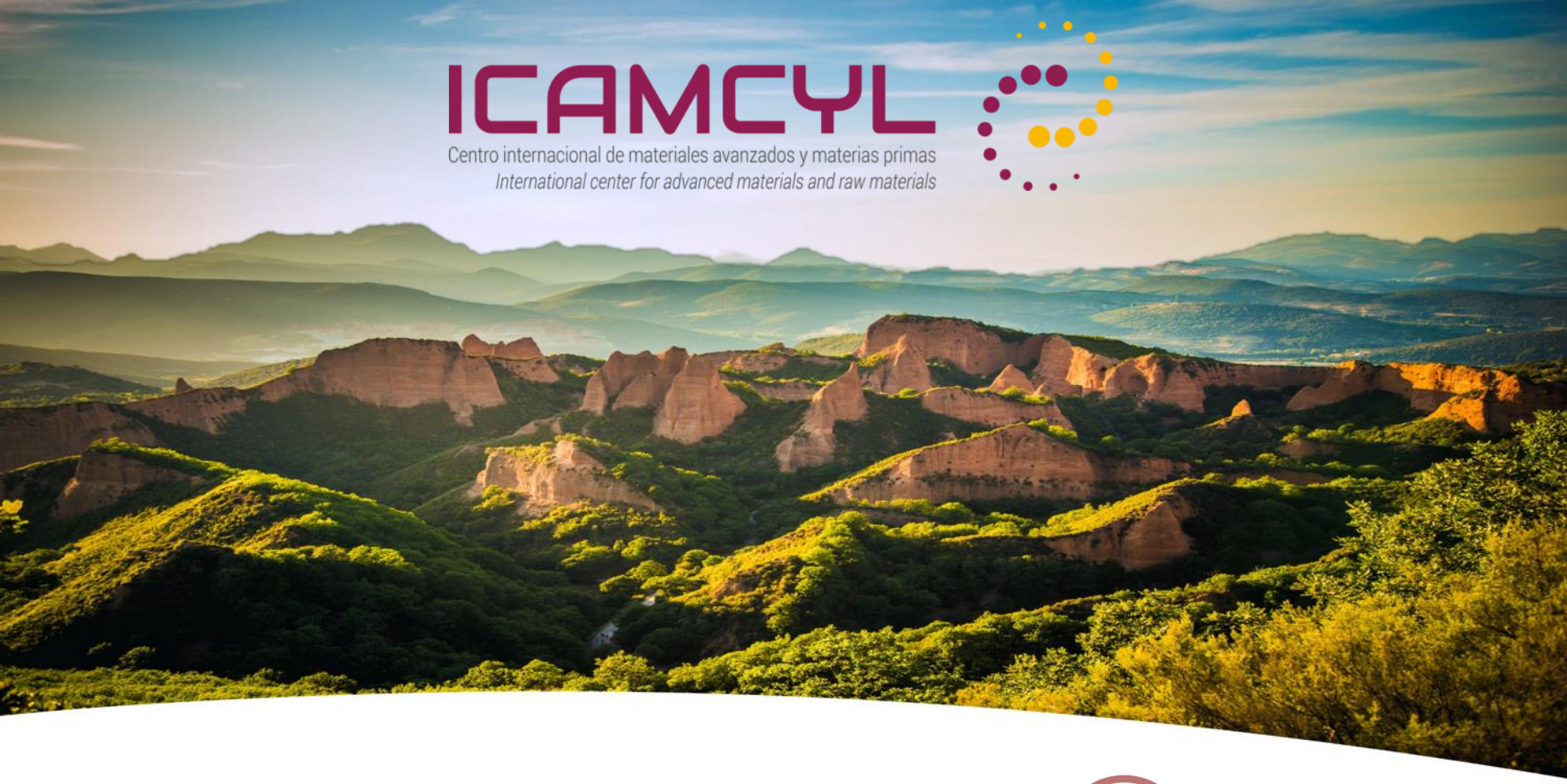
La Région Auvergne-Rhône-Alpes

GRUPO spri TALDEA

RÉGION Nouvelle-Aquitaine

METROPOOL REGIO EINDHOVEN

EMIRI



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